

NATURAL RESOURCES CONSERVATION SERVICE CONSERVATION PRACTICE STANDARD AND SPECIFICATIONS

UPLAND WILDLIFE HABITAT MANAGEMENT

(acre)

Code 645

DEFINITION

Creating, restoring, maintaining or enhancing areas for food, cover, and water for upland wildlife and species which use upland habitat for a portion of their life cycle.

PURPOSE

- Provide a variety of foods for the desired wildlife species through the management of the biophysical community.
- Provide a variety of cover types for the desired wildlife species, examples include nesting, fawning, loafing, resting, escape, travel lanes, brood habitat and thermal through the management of the biophysical community.
- Provide water requirements for the desired kinds of wildlife species.
- Manage habitat elements in proper amounts, proportions and locations to insure a viable wildlife population within the species home range.

CONDITIONS WHERE PRACTICE APPLIES

On all landscapes suitable for the development/management of the biophysical communities needed within the range of the desired species.

CRITERIA

General Criteria Applicable to all Purposes

Habitat development and management, necessary to achieve the purpose(s), shall be based on use of the Illinois Wildlife Habitat Evaluation or individual species models, depending upon the needs and objectives of the landowner. The Illinois Wildlife Habitat Evaluation is used to determine a habitat score for individual fields or habitat type(s) in the planning unit, or a weighted average habitat score for the biophysical community, entire property or operating unit (farm).

Illinois Wildlife Habitat Evaluation of the planned alternatives must result in a habitat score of at least 0.4 for habitat types that comprise more than 25% of the planning unit. Recommendations selected by the producer for development and management should achieve this minimum level of scoring on the Illinois Wildlife Habitat Evaluation.

Habitat Elements

The following elements will be considered when assessing wildlife habitat. Not all may apply to every habitat type.

1. Food
 - a. Type
 - b. Amount

2. Cover

- a. Type - nesting, brood rearing, resting/roosting, protection/escape, and winter.
- b. Amount
- c. Quality

3. Water

- a. quality
- b. quantity
- c. accessibility
- d. seasonal availability

4. Interspersion and Distance to

- a. crops
- b. grasses and or legumes
- c. shrubs
- d. trees
- e. water
- f. openings

5. Migration

- a. routes
- b. season of use
- c. corridors

As indicated by the wildlife habitat evaluation, certain habitat elements may be weak or missing. For the desired natural community or selected wildlife species, identify the types, amount, and distribution of habitat elements and management actions necessary to achieve the management objectives.

The amount and kinds of habitat elements planned, their location, and management shall be identified in a management plan.

Native plant materials will be used whenever possible. The use of native species will avoid problems associated with non-adapted and invasive plants.

Vegetative manipulations to restore plant diversity and provide for wildlife population stability shall be accomplished by prescribed burning or mechanical, biological or chemical methods, or a combination of the four.

Biological control of undesirable plant species and pests (e.g., using predator or

parasitic species) shall be implemented where available and feasible.

Any habitat management technique will ensure that the soil loss is within tolerable limit (T).

Where feasible and desired by the producer, PRESCRIBED BURNING (338) or light disking will be utilized instead of mowing.

Livestock grazing or haying can aid in achieving the desired wildlife habitat when used to maintain or improve vegetative structure and composition.

Management measures shall be provided to control invasive species and noxious weeds on a "spot" basis, where possible.

To protect forbs and legumes that benefit native pollinators and other wildlife and provide insect food sources for grassland nesting birds, spraying or other control of noxious weeds shall be done on a "spot" basis, where possible.

Additional Criteria to Provide a Variety of Cover Types for the Desired Wildlife Species.

GRASSES, LEGUMES AND FORBS Development

Native plants and communities are encouraged since they are well-adapted to sites, less invasive, and likely to provide quality habitat without long term maintenance. However, due to cost, availability, and landscape position, native plants may not be feasible in all situations.

CONSERVATION COVER (327) will be used to develop cover for wildlife. Planting mixes under (327) for wildlife will contain multiple species (at least 3).

It is recommended to consider the eradication of introduced invasive plant species. This eradication is often necessary to provide suitable conditions for grassland development.

Interseeding of legumes and forbs into existing grass stands can provide a needed food source and add plant diversity to attract beneficial insect populations. CONSERVATION COVER (327) and PASTURE AND HAYLAND PLANTING (512) will be used for appropriate seeding mixtures/techniques for the reestablishment of legumes into existing grass stands.

Management

Used alone or in combination with other techniques, mechanical methods can successfully manipulate successional stages of habitat. See EARLY SUCCESSIONAL HABITAT DEVELOPMENT/MANAGEMENT (647) and RESTORATION and MANAGEMENT of DECLINING HABITATS (643) for additional information.

Light disking (2-4" deep) of existing stands (greater than 4 years old) may be necessary to increase the amount of open ground and encourage a diverse plant community of annual and perennial plants. Disk between October 1 and April 30. Alternate disked strips (less than or equal to 75' wide) with buffer strips (2 times the disked width) across the field on contour/cross-slope. Disking shall be done within tolerable soil loss limits.

Annual mowing or mowing of entire stands is discouraged since it greatly decreases plant diversity, and reduces residual cover available for the following nesting season.

If mowing is necessary to maintain legumes, reduce and control noxious weeds and woody plants, two options are available:

- 1) Mow once during August to protect ground nesting wildlife and allow residual growth. Mow no more than one-half of the field every year alternating mowed and unmowed strips. Rotate mowed strips across the field every year. Mow cool season grasses no shorter than 6 inches. Native warm season grasses should be mowed no shorter than 8 inches.

- 2) A second option for mowing would be strip mowing in the spring. Mowing can be

done March 15 to May 1 to encourage vegetative diversity without greatly impacting ground nesting activities or loss of fall food plants. Mow no more than one-half of the field every year. Rotate mowed strips across the field every year.

If mowing is used as a habitat management practice, residues will be thoroughly shredded to prevent excess litter accumulation.

Use PRESCRIBED GRAZING (528A) to manipulate plant succession, reduce ground litter, and provide dusting areas. Livestock can be beneficial to maintaining the quality of herbaceous cover and controlling invasive plants when managed in accordance with a grazing plan with wildlife habitat management as the primary objective. This technique requires careful management to prevent overgrazing.

Use PRESCRIBED BURNING (338) to remove excess litter, which can reduce the quality of wildlife habitat. Controlled fire can allow germination of seed bearing annuals, increase plant species diversity, control unwanted woody cover, and open up the stand for movement of small animals and birds. Burn no more than one half of the grassland area in a year. Consider the effect of the timing of the burn on wildlife species using the grassland.

Use selected herbicides to manipulate plant succession and improve habitat diversity. Careful planning and care in application are required in the use of chemicals to improve existing habitat. Selection of a product should be based on several factors including product effectiveness, non-target species impacts, toxicological risks, and off-site movement of chemicals. See PEST MANAGEMENT (595) for recommendations and precautions.

TREES AND SHRUBS

Development

Species recommendations will be based on landowner objectives and site potential. Planting trees and shrubs has the potential

of adversely affecting non-target species. Careful consideration is to be given when planting trees and taller shrubs in the historic prairie region of the state. Soils and site potential should guide the plant species selected. See RESTORATION AND MANAGEMENT OF DECLINING HABITATS (643) for more information.

Woody plantings will follow the criteria and guidelines in HEDGEROW PLANTING (422), TREE/SHRUB ESTABLISHMENT (612), WOODLAND DIRECT SEEDING (652), FIELD WINDBREAK (392) or FARMSTEAD AND FEEDLOT WINDBREAK (380). These standards provide guidelines for clump and block plantings and reinforcement of existing woody cover.

A 0.1-0.25 acre native shrub planting should be planted in each 40 acres of habitat that lacks woody cover. An increased number of shrub plantings may be needed based on specific wildlife objectives. Consult with NRCS Biologist or IDNR (Illinois Department of Natural Resources) Biologist for specific recommendations.

Management

Manipulation of woody tree and shrub stands to achieve early successional plant composition encourages re-growth and regeneration (suckering) of palatable and nutritious vegetation beneficial to large mammals. Browse management also increases plant diversity, which supports a variety of other species. Browse management can be accomplished by mechanical (shearing, hand-cutting, mowing, etc), or prescribed burning.

Encourage old growth trees (greater than 80 years or 16 inches diameter breast height (dbh)) by deferring timber activities to maximize wildlife values on at least 10 percent of the forested area.

Removal of competition will provide sunlight and growing space necessary for full crown development by the target species.
FOREST STAND IMPROVEMENT (666)

will be used for recommendations on thinning extent and techniques.

Preservation of den trees (trees with cavities large enough to shelter wildlife) and snags (standing dead trees and limbs) serves many purposes for forest wildlife species. The goal is to leave 7 to 15 snags and den trees per acre. Ideally, leaving 1 snag or den tree greater than 20 inches dbh, 6 snag or den trees 10 to 20 inches dbh, and 3 snag trees less than 10 inches dbh per acre provide an optimal mix.

Artificial nest structures can provide nesting opportunities for cavity or roost nesting birds. Design, specifications, and construction shall be consistent with plans included in the IDNR "Wood Projects For Illinois Wildlife", or other designs specified by a technical wildlife agency.

Forest openings provide open space necessary for young birds to sun themselves, provide singing grounds, and a steady food supply. Openings of 1 to 3 acres are typically desirable. Woodland sites less than 40 acres in size generally will not benefit from openings. Likewise, caution should be exercised when proposing openings in woodland sites larger than 250 contiguous acres. Openings in this situation may lead to habitat fragmentation for non-target interior nesting species and increased predation. Consult with NRCS Biologist or IDNR Biologist for specific recommendations.

A number of well-scattered openings are more beneficial than a single large opening of comparable size. South facing slopes are preferred since these areas tend to remain free of snow for a longer time in the spring and fall. If woody vegetation encroachment comprises more than 10 percent of existing openings, woody vegetation will be controlled to help maintain desired vegetative components. Methods typically include a combination of mechanical, chemical, or prescribed burning practices.

FENCING (382) can be used to prevent improper use of wooded areas by livestock.

Brushpiles of at least 15 feet X 15 feet X 8 feet high can be developed with the material left from forest stand improvement or opening development.

GRASSLAND/BRUSHLAND

Apply this component to develop and maintain brushland/grassland habitats in prairie, transition (savanna), and forest areas. Glade and Savanna communities are included within this component. See EARLY SUCCESSIONAL HABITAT DEVELOPMENT/MANAGEMENT (647) and RESTORATION and MANAGEMENT of DECLINING HABITATS (643) for additional information.

Mechanical methods (burn, mow, disk, shear, or use of dozer) used alone or in combination with other techniques can successfully manipulate successional stages of habitat. Woody cover control becomes critical in planning areas to revert to prairie/savanna. Cut stumps should be treated to prevent sprouting. Amount of woody cover removal will be based on soil and site conditions.

Other management recommendations will be found under the preceding Management section under Permanent Vegetative Cover (Grasses, Legumes, Forbs).

EDGE HABITAT

Woody root pruning can be used to prevent encroachment of woody material into cropland edges. Root pruning is used to maintain crop yields adjacent to woody fencerows or wooded fields. Root pruning on a 3 to 5 year interval prevents crop yield reduction.

High-quality edge is a wide band of plants that gradually change from one cover type to another. See FIELD BORDER (386) for information. A minimum of 30 feet of edge is required to prevent excessive predation on wildlife using these transitional areas.

When edges are created in an area that is grazed, the edge will be fenced to exclude livestock.

Planting shrubs/small trees at the edge of the field can create Woodland Edge. HEDGEROW PLANTING (422), TREE/SHRUB ESTABLISHMENT (612), or FARMSTEAD AND FEEDLOT WINDBREAK (380) provide species and planting guidelines. A minimum of two rows will be planted.

A cutback border can also be created along a woodland edge. Overstory trees are removed to favor shrubs, vines and herbaceous vegetation. The regrowth and sprouting that result will provide benefits for 5 to 10 years. Cut stumps may be allowed to sprout or stump treated depending on woody species selection objectives.

To maintain maximum values in the cutback border, the area should be re-treated when at least 50 percent of the vegetation in the border exceeds 15 feet tall.

Edges can be allowed to revert to native plants if invasion by non-desirable plants will not be a problem. Plowing and disking the designated border can speed the plant succession process. This technique will only be used on non-erosive slopes.

Conversion of existing sod may also be necessary to provide the proper seedbed. Recommendations are found in CONSERVATION COVER (327), PASTURE and HAY PLANTING (512), and PEST MANAGEMENT (595).

CONSERVATION COVER (327) will be used to develop herbaceous edges for wildlife. Planting mixes under (327) for wildlife will contain multiple species (at least 3).

Developed edges must be maintained in a condition to meet the owner's objectives. Herbaceous borders should be treated to control woody vegetation. If mowing is used, mow only once in August. If mowing is used as a habitat management practice, residues will be thoroughly shredded to prevent excess litter accumulation.

Artificial nest structures can provide nesting opportunities. Design, specifications, and construction shall be consistent with plans

included in the IDNR "Wood Projects For Illinois Wildlife", or other designs specified by a technical wildlife agency.

CROPLAND

Many conservation practices provide high quality habitat components in cropfields. Introduction of cover types and plant diversity add to increased habitat values.

CONSERVATION CROPPING SEQUENCE (328), and CONSERVATION TILLAGE (329), can provide positive habitat values. FIELD BORDER (386) and GRASSED WATERWAYS (412) can introduce a valuable grassland component into cropfield situations when beneficial species and management are used.

Reduced/eliminated chemical use will allow significant growth of annual plants, thus enhancing the cropfield values for wildlife.

Illinois Wildlife Habitat Evaluation should be consulted for minimum criteria for cropland recommendations for wildlife.

Leave unharvested grain strips along edges of adjacent other cover types. Strips should be at least 30 feet wide (12, 30 inch rows) and at least one-quarter acre in size.

Additional Criteria to Provide a Variety of Foods for the Desired Wildlife Species through the Management of the Biophysical Community.

Many wildlife species depend on and prefer native weed seeds and wild fruits for winter food. Additional high-quality food can be provided in the form of green browse or standing grain food plots.

Food plots should be located on the least erosive areas of each field. Soil loss must be maintained within the tolerable limit (T). Adequate vegetative cover must be developed and maintained to provide both wildlife and erosion control benefits. If food plots are relocated or discontinued, the site will be re-seeded based on this standard.

Plots may be located on slopes greater than 5 percent provided soil losses do not exceed tolerable limit (T). Plots planted on the contour are recommended.

The food plot should be adequately fertilized. Proper fertilization will help ensure successful establishment and growth of the food plot.

Weed control is not required as the presence of some weeds such as foxtail and ragweed actually benefit wildlife by providing higher protein and greater number of seeds than domestic grains.

Food plots will be protected from livestock grazing.

Plantings shall be seeded at proper time to ensure maturity of food plants.

Additional Criteria to Provide Water Requirements for the Desired Kinds of Wildlife Species.

Water requirements for Illinois' upland wildlife species can be met with one year-round source of surface water in every 160 acres of habitat. To develop sources of water for wildlife use the WILDLIFE WATERING FACILITY (648) Standard.

CONSIDERATIONS

This standard does not attempt to list all possible habitat development and management practices. An NRCS Biologist or IDNR Biologist may recommend other practices for application.

All land uses provide habitat for wildlife, but there is a great variability in the quality (condition) of the land to support wildlife. A land use may provide one or more of the habitat elements necessary for a particular species during specific seasons of the year.

Wildlife population control (hunting or trapping to reduce numbers) is the responsibility of state and federal wildlife agencies. Landowners will be required to follow appropriate state and federal guidelines. Wildlife population control may

be an alternative to protect and maintain certain habitats.

Vegetative management recommendations can be directed towards habitat gains while still maintaining the intent of protecting the soil resource.

Consider that manipulations of habitat may impact more than the desired kinds of wildlife. These possible effects shall be evaluated and taken into consideration during the planning process.

This practice may be used to promote the conservation of declining species, including threatened and endangered species.

Consider the problems of habitat fragmentation when using this practice. Create large blocks of habitat versus increased edge if necessary, based on the needs of the wildlife species of interest.

Consider habitat linkages and habitat corridors when developing upland wildlife habitat.

Proper timing of haying and livestock grazing will avoid periods when upland wildlife are nesting, fawning, etc. and will allow the establishment, development, and management of upland vegetation for the intended purpose.

PLANS AND SPECIFICATIONS

Plans and specifications for this practice shall be prepared for each site. Plans and specifications shall be recorded using approved specification sheets, job sheets, technical notes, or narrative documentation in the conservation plan, or other acceptable documentation.

NRCS staff is encouraged to work closely with the NRCS Biologist or IDNR Biologist in developing site specific plans and specifications. All documents developed are to specify the requirements for installing the practice, such as the kind, amount or quantity of materials to be used, or the timing or sequence of installation activities.

Grain Food Plot Specifications

The minimum size of a grain food plot is one-quarter acre (about 11,000-sq. ft.). Grain food plots over 5 contiguous acres are generally not needed. Plots should be at least 30 feet wide. As a rule, one grain plot for every 40 acres of farmland is a minimum where food is a limiting factor for the species of concern. The maximum amount of the tract in grain food plots will be 20% or less.

In open country, corn or grain sorghum food plots must provide winter cover as well as emergency food. To maximize cover benefits, these food plots should be block-shaped with sides at least 300 feet wide (2 acres). These plots should be 2 to 5 acres in size.

Where possible, grain food plots should be located adjacent to winter cover. In all cases locate the food plot within 660' feet of dense winter cover. If there is no winter cover in the area, brushpiles can be constructed (15 feet X 15 feet X 8 feet) adjacent to food plots to provide the needed cover. Construct at least 6 brushpiles per acre of food plot. Another option for winter cover is to design the plot to provide winter cover as well as food (see previous paragraph).

Each year one-half of the grain food plot should be planted with the other half allowed to grow annual plants. Rotate this sequence the following year.

Sorghum seeds are rich in energy, persistent on the plant, and usually available to wildlife when snow or ice covers other seeds. If only one grain is to be planted, grain sorghum (milo) will give the best results

Avoid planting food plots closer than 50 feet on the North side of trees or tall shrubs that will shade the plot.

Recommended species and broadcast seeding rates for wildlife food plots.	
Single grain	Pounds/acre* (broadcast rate)
grain sorghum	16
corn	15
sunflowers	8
oats	50
wheat	50
buckwheat	40
millet	20
cowpea	20
partridge pea	15
Grain Mixtures	Pounds per Acre* (broadcast rate)
1. grain sorghum	8
soybean	12
2. grain sorghum	8
soybean	8
millet	2
3. grain sorghum	12
sunflowers	8
4. grain sorghum	8
corn	8
5. IDNR Food Patch Mix	6 (1 bag)
6. Quail Unlimited Food Plot Mix	1 bag per 1/4 acre

* These rates can be reduced by 50% if drilled or row planted.

An NRCS Biologist or other wildlife technical agency may recommend other food plot mixtures.

Green Browse Food Plot Specifications

Green browse food plot should be at least one acre. Plots should be located on non-erosive areas. Soil loss must be within tolerable limit (T).

The site should be open, tillable and next to suitable cover. Place the plot at least 50 feet from any woodland edge to reduce competition from trees and allow sunlight to reach the planting. A buffer strip of perennial weeds and woody shrubs should be encouraged to develop over time between the browse plot and the timber.

Seed 30 pounds (1/2 bushel) per acre wheat and 2 pounds per acre of orchard grass in the fall (follow seeding dates for cool season grasses). At the time of seeding, overseed one-half of the plot with a seed mixture consisting of 1 pound per acre of ladino clover and 2 pounds per acre of red clover. The following spring (January - March) the other one-half of the food plot should be over-seeded with 10 pounds per acre of lespedeza (Korean, Kobe, Marion, Summit or a mix of these). Note: Annual lespedezas are limited to Plant Suitability Zones 2 and 3 only. Partridge pea may be substituted for annual lespedeza in other zones.

An alternate seed mix is 30 pounds (1/2 bushel) per acre wheat, 6 pounds per acre alfalfa, and 4 pounds per acre red clover may be used.

An NRCS Biologist or other wildlife technical agency may recommend other food plot mixtures.

Green browse plots should be mowed annually between July 1 and July 15 to maintain palatability of browse.

Renovate and re-establish plots when legume canopy cover drops below 30% (3 to 4 years).

OPERATION AND MAINTENANCE

The purpose of operation, maintenance, and management is to insure that the practice functions as intended over time.

A plan for operation and maintenance of upland wildlife habitat at a minimum shall include monitoring and management of structural and vegetative measures. Actions will be carried out to ensure this

practice functions as intended throughout its expected life. These actions include normal repetitive activities in the application and use of the practice (operation) such as prescribed fire, disking, or mowing, and repair and upkeep of the practice (maintenance) such as replacement of vegetative component as needed.

REFERENCES

IDNR "Wood Projects For Illinois Wildlife

Illinois NRCS Biology Technical Notes

Illinois NRCS Job Sheets

Illinois Wildlife Habitat Evaluation. Biology Technical Note #18

NRCS Wildlife Habitat Management Institute, Fish and Wildlife Habitat Management Leaflets
www.ms.nrcs.usda.gov/whmi/technotes.htm

INTERNET SITES

Illinois Department of Natural Resources
<http://dnr.state.il.us/>

Illinois Natural History Survey
www.inhs.uiuc.edu/

NRCS Wildlife Habitat Management Institute
www.ms.nrcs.usda.gov/whmi